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Amendments to the Claims

Please cancel Claims 12-38 and 44-48. Please amend Claims 1-6. Please add new Claims 49-52. The Claim Listing below will replace all prior versions of the claims in the application.

Claim Listing

1. (Currently amended) A composition comprising OspC polypeptides from Lyme Disease causing *Borrelia* wherein ~~either:~~
 - ~~a)~~ said composition comprises one or more OspC polypeptides ~~or immunogenic fragments thereof~~ from at least two *Borrelia burgdorferi sensu stricto* OspC families selected from the group consisting of: A, B, I, and K, excepting the combination consisting of two OspC proteins wherein one OspC protein is from family A and the second OspC protein is from family I, or, family I.
 - ~~b)~~ said composition comprises at least one OspC polypeptide ~~or immunogenic fragment thereof~~ from each of *Borrelia afzelii* OspC families A and B.
2. (Currently amended) The composition of Claim 1 comprising one or more OspC polypeptides ~~or fragments thereof~~ from each of said *Borrelia burgdorferi sensu stricto* families ~~of the group of subpart a).~~
3. (Currently amended) The composition of Claim 1, wherein said OspC polypeptide ~~or fragment thereof~~ comprises the OspC protein variable region.
4. (Currently amended) The composition of Claim 3, wherein said OspC polypeptide ~~or fragment thereof~~ is encoded by a nucleic acid comprising nucleotide 26 to about nucleotide 621 of an *ospC* gene.

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5. (Currently amended) The composition of Claim 3, wherein said *OspC* polypeptide or ~~fragment thereof~~ is encoded by a nucleic acid comprising nucleotide 53 to about nucleotide 570 of an *ospC* gene.
6. (Currently amended) The composition of Claim 1, wherein at least two of said *OspC* polypeptides or ~~immunogenic fragments thereof~~ are fused together in a single protein, encoded by a single nucleic acid, wherein polypeptides in said fusion protein are not found in the same configuration in a naturally occurring *OspC* protein.
7. (Original) The composition of Claim 1, wherein the *ospC* genes encoding the *OspC* polypeptides within a given *OspC* family are at least 98% identical at the nucleic acid level.
8. (Previously presented) The composition of Claim 7, wherein *Borrelia burgdorferi sensu stricto* *OspC* family A comprises strains B31, CA4, HII, IPI, IP2, IP3, L5, PIF, Pka, Txgw and strains containing *ospC* allele OC1.
9. (Previously presented) The composition of Claim 7, wherein *Borrelia burgdorferi sensu stricto* *OspC* family B comprises strains 35B808, 61 BV3, BUR, DK7, PB3, Z57 and strains containing *ospC* genes OC2 and OC3.
10. (Previously presented) The composition of Claim 7, wherein *Borrelia burgdorferi sensu stricto* *OspC* family I comprises strains 297, HB19 and strains containing *ospC* gene OC10, wherein strain 297 is characterized by *ospC* of GenBank accession number L42893.
11. (Previously presented) The composition of Claim 7, wherein *Borrelia burgdorferi sensu stricto* *OspC* family K comprises strains 272, 297, 28354, KIPP, MUL and strains

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containing *ospC* gene OC12 and OC13, wherein strain 297 is characterized by *ospC* of GenBank accession number U08284.

12-38. (Canceled)

39. (Previously presented) A chimeric protein comprising OspC polypeptides from two or more Lyme Disease causing OspC families of Lyme Disease causing *Borrelia* wherein said chimeric protein comprises:
- a) a first OspC polypeptide encoded by a nucleic acid comprising a sequence from about nucleotide 26 to about nucleotide 621 of an *ospC* gene from a first OspC family and
 - b) a second OspC polypeptide encoded by a nucleic acid comprising a sequence from about nucleotide 28 to about nucleotide 570 of an *ospC* gene from a second OspC family,

wherein said OspC families are selected from the group consisting of: *Borrelia burgdorferi sensu stricto* OspC families A, B, I, and K, and *Borrelia afzelii* OspC families A and B.

40. (Canceled)

41. (Previously presented) A chimeric protein comprising OspC polypeptides from two or more Lyme Disease causing OspC families of Lyme Disease causing *Borrelia* wherein said chimeric protein comprises:
- a) a first OspC polypeptide encoded by a nucleic acid comprising a sequence from about nucleotide 53 to about nucleotide 570 of an *ospC* gene from a first OspC family and
 - b) a second OspC polypeptide encoded by a nucleic acid comprising a sequence from about nucleotide 28 to about nucleotide 570 of an *ospC* gene from a second OspC family,

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wherein said OspC families are selected from the group consisting of: *Borrelia burgdorferi sensu stricto* OspC families A, B, I, and K, and *Borrelia afzelii* OspC families A and B.

42. (Original) The chimeric protein of Claim 41, wherein said protein is unlipidated.
43. (Previously presented) A chimeric OspC protein selected from the group consisting of:
SEQ Id Nos: 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70,
72, 74, 76, 78, 80, 82, and 84.
- 44-48. (Canceled)
49. (New) The composition of Claim 1, further comprising at least one OspC polypeptide
from each of *Borrelia afzelii* OspC families A and B.
50. (New) The composition of Claim 49, wherein *Borrelia afzelii* OspC family A comprises
strains Pbo, Pwud, PKO, Pgau, DK2, DK3, DK21, DK8, Bfox and JSB.
51. (New) The composition of Claim 49, wherein *Borrelia afzelii* OspC family B comprises
strains DK5, ACA1, DK9, XB18h, Ple and 134M.
52. (New) The chimeric protein of Claim 39, wherein said protein is unlipidated.